WHAT IS CLAIMED IS:

1. A distortion compensation apparatus for compensating for a distortion component generated in a device, comprising:

first envelope detection means for detecting an envelope voltage of an input signal supplied to the device;

second envelope detection means for detecting an envelope voltage of an output signal of the device;

comparison means for comparing the envelope voltage detected by the first envelope detection means with the envelope voltage detected by the second envelope detection means;

comparison result correction means for correcting a relationship concerning a result of comparison made by the comparison means, as to which of the envelope voltages is larger/smaller;

amplitude control signal generation means for generating an amplitude control signal for controlling an amplitude of the input signal, based on a correction output of the comparison result; and

amplitude control means for controlling a gain of the amplitude of the input signal, based on the amplitude control signal generated by the amplitude control signal generation means.

2. The apparatus according to claim 1, wherein the amplitude control signal generation means includes amplitude correction data output means for outputting data

for amplitude correction, in correspondence with the envelope voltage detected by the first envelope detection means, and for updating data for amplitude correction, based on the correction output of the comparison result correction means.

3. The apparatus according to claim 2, wherein the amplitude correction data output means is a writable storage medium which previously stores data for amplitude correction.

4. The apparatus according to claim 3, wherein two of the writable storage mediums, each being the same as the amplitude correction data output means, are provided.

5. The apparatus according to claim 4, wherein the two writable storage mediums alternately perform reading and updating of the data for amplitude correction.

6. The apparatus according to claim 1, wherein the comparison result correction means latches the comparison result of the comparison means, and corrects and outputs digital +1 or -1 bit, based on a latch value thereof.

7. A distortion compensation apparatus for compensating for a distortion component generated in a device, comprising:

first envelope detection means for detecting an envelope voltage of an input signal supplied to the device;

second envelope detection means for detecting an envelope voltage of an output signal of the device;

calculation means for obtaining a difference between the envelope voltage

detected by the first envelope detection means and the envelope voltage detected by the second envelope detection means;

comparison means for comparing the difference obtained by the calculation means with a predetermined reference value;

comparison result correction means for correcting a relationship concerning a result of comparison made by the comparison means, as to which of the difference and the reference value is larger/smaller;

amplitude control signal generation means for generating an amplitude control signal for controlling a gain of an amplitude of the input signal, based on a correction output of the comparison result; and

amplitude control means for controlling the gain of the amplitude of the input signal, based on the amplitude control signal generated by the amplitude control signal generation means.

8. The apparatus according to claim 7, wherein the amplitude control signal generation means includes amplitude correction data output means for outputting data for amplitude correction, in correspondence with the envelope voltage detected by the first envelope detection means, and for updating data for amplitude correction, based on the correction output of the comparison result correction means.

9. The apparatus according to claim 8, wherein the amplitude correction data output means is a writable storage medium which previously stores data for amplitude correction.

10. The apparatus according to claim 9, wherein two or the writable storage mediums, each being the same as the amplitude correction data output means, are provided.

11. The apparatus according to claim 10, wherein the two writable storage mediums alternately perform reading and updating of the data for amplitude correction.

12. The apparatus according to claim 7, wherein the comparison result correction means latches the comparison result of the comparison means, and corrects and outputs digital +1 or -1 bit, based on a latch value thereof.

13. The apparatus according to claim 7, comprising two comparison means for comparing the difference calculated by the calculation means with predetermined reference values, respectively, to obtain two comparison results.

14. The apparatus according to claim 13, wherein the comparison result correction means corrects relationship concerning the two comparison results, as to which of the difference and the reference values are larger/smaller.

15. The apparatus according to claim 1, further comprising:

phase control signal generation means for generating a phase control signal for controlling a phase of the input signal, in correspondence with the envelope voltage detected by the first envelope detection means; and

phase control means for controlling the phase of the input signal, based on the phase control signal generated by the phase control signal generation means.

16. The apparatus according to claim 15, wherein the amplitude control signal

generation means includes amplitude correction data output means for outputting data for amplitude correction, in correspondence with the envelope voltage detected by the first envelope detection means, and for updating data for amplitude correction, based on the correction output of the comparison result correction means.

17. The apparatus according to claim 16, wherein the amplitude correction data output means is a writable storage medium which previously stores data for amplitude correction.

18. The apparatus according to claim 17, wherein two of the writable storage mediums each being the same as the amplitude correction data output means are provided.

19. The apparatus according to claim 18, wherein the two writable storage mediums alternately perform reading and updating of the data for amplitude correction.

20. The apparatus according to claim 15, wherein the comparison result correction means latches the comparison result of the comparison means, and corrects and outputs digital +1 or -1 bit, based on a latch value thereof.

21. The apparatus according to claim 7, further comprising:

phase control signal generation means for generating a phase control signal for controlling a phase of the input signal, in correspondence with the envelope voltage detected by the first envelope detection means; and

phase control means for controlling the phase of the input signal, based on the phase control signal generated by the phase control signal generation means.

22. The apparatus according to claim 13, further comprising:

phase control signal generation means for generating a phase control signal for controlling a phase of the input signal, in correspondence with the envelope voltage detected by the first envelope detection means; and

phase control means for controlling the phase of the input signal, based on the phase control signal generated by the phase control signal generation means.

23. A distortion compensation apparatus for compensating for a distortion component generated in a device, comprising:

first envelope detection means for detecting an envelope voltage of an input signal supplied to the device;

phase control signal generation means for generating a phase control signal for controlling a phase of the input signal, in correspondence with the envelope voltage detected by the first envelope detection means;

phase control means for controlling the phase of the input signal, based on the phase control signal generated by the phase control signal generation means;

second envelope detection means for detecting an envelope voltage of an output signal of the device;

phase difference detection means for detecting a phase difference between the envelope voltage detected by the first envelope detection means and the envelope voltage detected by the second envelope detection means; and

addition means for adding the phase difference detected by the phase difference

detection means to the phase control signal generated by the phase control signal generation means, and for supplying an addition result to the phase control means.

24. The apparatus according to claim 23, further comprising:

comparison means for comparing the envelope voltage detected by the first envelope detection means with the envelope voltage detected by the second envelope detection means;

comparison result correction means for correcting a relationship concerning a result of comparison made by the comparison means, as to which of the envelope voltages is larger/smaller;

amplitude control signal generation means for generating an amplitude control signal for controlling an amplitude of the input signal, based on a correction output of the comparison result; and

amplitude control means for controlling a gain of the amplitude of the input signal, based on the amplitude control signal generated by the amplitude control signal generation means.

25. The apparatus according to claim 24, wherein the amplitude control signal generation means includes amplitude correction data output means for outputting data for amplitude correction, in correspondence with the envelope voltage detected by the first envelope detection means, and for updating data for amplitude correction, based on the correction output of the comparison result correction means.

26. The apparatus according to claim 25, wherein the amplitude correction data

output means is a writable storage medium which previously stores data for amplitude correction.

27. The apparatus according to claim 26, wherein two of the writable storage mediums, each being the same as the amplitude correction data output means, are provided.

28. The apparatus according to claim 27, wherein the two writable storage mediums alternately perform reading and updating of the data for amplitude correction.

29. The apparatus according to claim 24, wherein the comparison result correction means latches the comparison result of the comparison means, and corrects and outputs digital +1 or -1 bit, based on a latch value thereof.

30. A distortion compensation method for compensating for a distortion component generated in a device, comprising:

a first envelope detection step of detecting an envelope voltage of an input signal supplied to the device;

a second envelope detection step of detecting an envelope voltage of an output signal of the device;

a comparison step of comparing the envelope voltage detected in the first envelope detection step with the envelope voltage detected in the second envelope detection step;

a comparison result correction step of correcting a relationship concerning a result of comparison made in the comparison step, as to which of the envelope

voltages is larger/smaller;

an amplitude control signal generation step of generating an amplitude control signal for controlling an amplitude of the input signal, based on a correction output of the comparison result correction step; and

an amplitude control step of controlling a gain of the amplitude of the input signal, based on the amplitude control signal generated by the amplitude control signal generation step.

31. The method according to claim 30, further comprising:

a phase control signal generation step of generating a phase control signal for controlling a phase of the input signal, in correspondence with the envelope voltage detected in the first envelope detection step; and

a phase control step of controlling the phase of the input signal, based on the phase control signal generated in the phase control signal generation step.

32. A distortion compensation method for compensating for a distortion component generated in a device, comprising:

a first envelope detection step of detecting an envelope voltage of an input signal supplied to the device;

a second envelope detection step of detecting an envelope voltage of an output signal of the device;

a calculation step of obtaining a difference between the envelope voltage detected in the first envelope detection step and the envelope voltage detected in the

second envelope detection step;

a comparison step of comparing the difference obtained in the calculation step with a predetermined reference value;

a comparison result correction step of correcting a relationship concerning a result of comparison made in the comparison step, as to which of the difference and the reference value is larger/smaller;

an amplitude control signal generation step of generating an amplitude control signal for controlling a gain of an amplitude of the input signal, based on a correction output of the comparison result correction step; and

an amplitude control step of controlling the gain of the amplitude of the input signal, based on the amplitude control signal generated in the amplitude control signal generation step.

33. The method according to claim 32, further comprising:

a phase control signal generation step of generating a phase control signal for controlling a phase of the input signal, in correspondence with the envelope voltage detected in the first envelope detection step; and

a phase control step of controlling the phase of the input signal, based on the phase control signal generated in the phase control signal generation step.

34. A distortion compensation method for compensating for a distortion component generated in a device, comprising:

a first envelope detection step of detecting an envelope voltage of an input

signal supplied to the device;

a phase control signal generation step of generating a phase control signal for controlling a phase of the input signal, in correspondence with the envelope voltage detected in the first envelope detection step;

a phase control step of controlling the phase of the input signal, based on the phase control signal generated in the phase control signal generation step;

a second envelope detection step of detecting an envelope voltage of an output signal of the device;

a phase difference detection step of detecting a phase difference between the envelope voltage detected in the first envelope detection step and the envelope voltage detected in the second envelope detection step; and

an addition step of adding the phase difference detected in the phase difference detection step to the phase control signal generated in the phase control signal generation step, and of supplying an addition result to the phase control step.

35. The method according to claim 34, further comprising:

a comparison step of comparing the envelope voltage detected in the first envelope detection step with the envelope voltage detected in the second envelope detection step;

a comparison result correction step of correcting a relationship concerning a result of comparison made in the comparison step, as to which of the envelope voltages is larger/smaller;

an amplitude control signal generation step of generating an amplitude control signal for controlling an amplitude of the input signal, based on a correction output of the comparison result correction step; and

an amplitude control step of controlling a gain of the amplitude of the input signal, based on the amplitude control signal generated in the amplitude control signal generation step.